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Magazine

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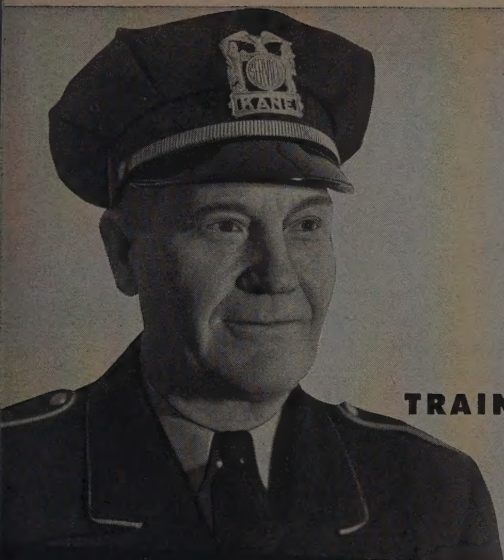
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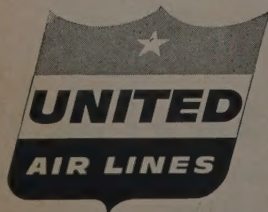
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statistics of...

Chicago Business

	November 1954	October 1954	November 1953
Building permits	718	856	
Cost	\$ 16,939,550	\$ 22,836,000	\$ 11,861,000
Contracts awarded on building projects, Cook County	2,027	2,796	2,796
Cost	\$ 60,886,000	\$ 79,976,000	\$ 46,771,000
(F. W. Dodge Corp.)			
Real estate transfers	8,325	8,202	8,202
Consideration	\$ 5,091,381	\$ 5,390,476	\$ 4,402,000
Department store sales index (Federal Reserve Board) (Daily average 1947-49 = 100)	130	109	
Bank clearings	\$ 4,173,780,796	\$ 3,957,991,290	\$ 3,823,321,000
Bank debits to individual accounts: 7th Federal Reserve District	\$22,344,000,000	\$21,327,000,000	\$21,607,000,000
Chicago only	\$11,614,321,000	\$11,150,469,000	\$10,937,563,000
(Federal Reserve Board)			
Bank loans (outstanding)	\$ 2,779,000,000	\$ 2,619,000,000	\$ 2,798,000,000
Midwest Stock Exchange transactions:			
Number of shares traded	1,932,589	1,586,374	1,067,000
Market value of shares traded	\$ 69,485,804	\$ 56,282,377	\$ 32,706,000
Railway express shipments, Chicago area	1,009,075	910,630	1,007,000
Air express shipments, Chicago area	66,432	69,236	56,000
L.C.L. merchandise cars	18,214	19,197	17,000
Electric power production, kwh	1,490,460,000	1,449,323,000	1,416,545,000
Industrial gas sales, therms	13,252,849	12,408,343	14,096,000
Steel production (net tons)	1,546,700	1,452,400	1,660,000
Revenue passengers carried by Chicago Transit Authority lines:			
Surface division	43,240,519	44,099,220	46,061,000
Rapid transit division	9,516,823	9,428,131	9,473,000
Postal receipts	\$ 14,589,637	\$ 12,697,615	\$ 13,229,000
Air passengers:			
Arrivals	293,783	336,279	255,000
Departures	312,153	350,073	269,000
Consumers' Price Index (1947-49 = 100)	117.6	117.1	117.1
Receipts of salable livestock	555,946	421,184	508,000
Unemployment compensation claimants, Cook & DuPage counties	58,845	59,990	25,000
Families on relief rolls:			
Cook County	24,751	23,782	16,000
Other Illinois counties	15,669	15,062	11,000

February, 1955, Tax Calendar

Date Due	Tax	Returnable to
15	Illinois Retailers' Occupation Tax return and payment for month of January	Director of Revenue (Illinois)
15	If total O.A.B. taxes (employer and employee) plus income tax withheld in previous month exceeds \$100, pay amount to	Authorized Depository
15	Annual Federal Information returns. This is calendar year 1954 report—not fiscal. (Forms 1096 and 1099). 1099 not required on wages reported on Form W-2 (Rev.)	Commissioner of Internal Revenue, Processing Div., P.O. Box 1099, Kansas City, Mo.
28	Last day for filing of annual Franchise Tax Report without penalty by domestic and foreign corporations. Based on calendar year 1955 or on end of fiscal year preceding Dec. 31, 1954.	Secretary of State

COMMERCE

Magazine

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January, 1955

Volume 51

Number 12

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in this

issue...

Now that declining farm prices are making headlines, the same manufacturers who jumped into the farm market with both feet a few years ago are reducing advertising budgets and pulling in salesmen. Are they smart in doing this? No, says Mr. C. R. Lash, and he tells why in his article starting on page 13.

While no executive in his right mind would hold a loaded revolver to his head and fire it, surveys of this group show that many are doing an equally thorough but less spectacular job of killing themselves —by overworking to gain a promotion that may prove to be beyond their capacity. It's a growing problem for business today. On page 15, Dr. Schweisheimer analyzes the situation and tells what can be done about it.

What's holding back the adoption of Jet propelled commercial aircraft in this country? Mr. Charles Froesch, vice president in charge of engineering for Eastern Air Lines, Inc., lists four fundamental delaying factors (page 16). His article also predicts the shape of tomorrow's flying craft and sees the possibility of flights at 100,000 feet altitude.

Most Chicagoans are unaware of a change that is taking place on the near south side. At the turn of the century it was a most select residential neighborhood. Fifteen years ago, it was one of the city's worst slums. Today, it is on the road back. Some say it is destined to become one of the city's best areas again and within a relatively short period. The story of the birth of Technology Center and subsequent rebuilding of a large slum area, starts on page 18.

In your search for new markets, how much attention do you pay to the needs and desires of the people you are trying to reach? How much do you study their way of life? Will your new line of products be your old line with new faces? Will your new line be a completely fresh line designed to serve new functions? No matter what your type of business, you will find Mr. Dave Chapman's article (page 21) helpful in planning for the years ahead.

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The Editor's Page

Merchant Ships And The Midwest

"The expression 'landlocked states' is merely a geographic term—and definitely not an economic one."

This thought was expressed in a recent talk by Alexander Purdon, executive director of the Committee of American Steamship Lines, entitled "The Mid-West and the Merchant Marine." And he had a battery of facts to support it.

The United States is the world's largest exporter and importer. For many countries we are the largest supplier and the biggest market. With only five per cent of the world's population, we produce well over 40 per cent of the world's total output of goods and services.

The livelihood of many a worker who has never seen an ocean depends on the commerce the oceans bear. Our exports amount to \$15 billion a year and provide employment for some 3,000,000 men and women of the United States. Imports amount to about \$10 billion. Of this, Mr. Purdon said, "Actually the effect of this trade on individual sectors is greater than the figures indicate."

To take a major example, one-third of our wheat production is shipped abroad. About a tenth of all our cropland is needed to produce our farm export volume. Since 1945, the value of agricultural exports has been equal to one-eighth of the total farm income. And, on the other side, we depend heavily on foreign sources for such things as coffee, tea, spices and sugar. "Ocean transportation," to quote Mr. Purdon again, "is the indispensable link between U. S. farms and U. S. factories and the markets and material resources of foreign lands."

Mr. Purdon's committee is engaged in a series of economic surveys to measure the importance of the American Merchant Marine to inland states. Some have been completed, and in each case it has been found that international trade and ocean-going transportation are vital to their economies. The steel industry, for instance, is one of our principal employers. That industry depends upon ships to bring it 15 basic raw materials from the five continents of the globe. Automobiles, trucks and busses—which account for an enormous amount of employment—could not be manufactured without some 250 imported materials that are brought in by ship from 56 foreign countries.

Moreover, as Mr. Purdon also observed, by 1975 our population will be 40,000,000 greater than now—which means that "we are going to need more energy, more transportation, more raw materials, more farm produce to maintain that vast population at our American standard of living which will doubtless also increase." In this evolution, foreign trade will play an important role. And so, inevitably, will the U. S. merchant marine.

The Myth of "Saturation"

One of the things that has often confounded foreign businessmen is the fact that American business defies the concept of "saturation." Unlike the Englishman, for example, who takes pride in keeping his Anglia going ten or 20 years, or even a lifetime, the American buyer scarcely gets the payments made on his newest automobile before he starts thinking about buying another. The same practice of disposing of durables before they have been worn to a state of uselessness applies to almost all consumer durables in our market.

Without going deeply into psychological reasons, American businessmen have long understood that this practice is promoted by the development of new and improved products. There is more to it, however than that. Deeper probing is now being done under the auspices of the Foundation for Research on Human Behavior, which reports:

"Saturation with goods is often analyzed as if it were similar to the physiological saturation which follows satisfaction of the desires for food, drink and sex. There is little truth in this analysis, because people buy many goods mainly to satisfy social and psychological desires. Therefore, an understanding of economic saturation requires an understanding of the relevant psychological principles.

"The psychological principle most relevant to saturation is the idea of levels of aspiration. Success in achieving a level of aspiration, or goal, usually results in the setting of a higher level of aspiration, a new goal. Failure, on the other hand, often leads to a lowering of sights. Thus, in the translation of wishes and desires into effective demand, attitudes—as well as resources—are very important. In particular, the various attitudes related to optimism and satisfaction are important . . ."

The researchers recognize that consumers sometimes do "surfeit with goods of certain types." They go on to conclude, however, that "if an oversimplified rule is to be applied to buying behavior in the American economy of the 1950's, it would be more correct to say, 'The more people acquire, the more they want to acquire,' than to say, 'The more people have, the less they want.'"

Here is an answer, and one proved by the record, to those who constantly worry about overcapacity and overproduction. No such concern disturbs the American consumer whose appetite for more and better things seems to grow geometrically.

Alan Study

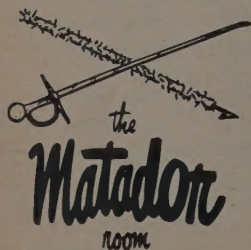


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Here...There... and Everywhere

• **It's a Cold Outlook**—Don't let the mild winter weather fool you. Geologists at the University of Chicago report that the earth is getting colder. One long range study they made shows that the temperature of the oceans has dropped about 14 degrees in the last thirty million years. Another hints at the possibility of a new glacial age which may bury cities like Chicago, Berlin, and Moscow under a thousand feet of ice. It could happen within the next 10,000 years, they say.

• **The Spirit of 1976**—A committee of Chicago business men has been organized to bring a World's Fair to Chicago 21 years from now. The purpose: To celebrate and observe the bi-centennial of America's birth as a nation.

• **Engineer Shortage to Continue**—The shortage of engineering graduates will continue according to Dr. John T. Rettaliata, president of Illinois Institute of Technology. The number of engineering graduates has declined steadily in recent years, dropping from 41,000 in 1951 to 20,000 in 1954. The total for 1955 will be somewhat larger, an estimated 24,000, but will be far below the 30,000 required by industry annually. Dr. Rettaliata attributes the shortage to several factors, including the erroneous government report put out in 1950 predicting an oversupply of engineers, which dissuaded many high school students from choosing engineering careers. Another is the military service which he estimates will take about half of this year's graduates.

• **Textiles, Papers Improved**—Man-made chemicals can be applied to such fabrics as denim and greatly improve the quality of the denim. The treated denim won't fade or run and will resist wear as much as five times better than conventional denims, The B. F. Goodrich Chem-

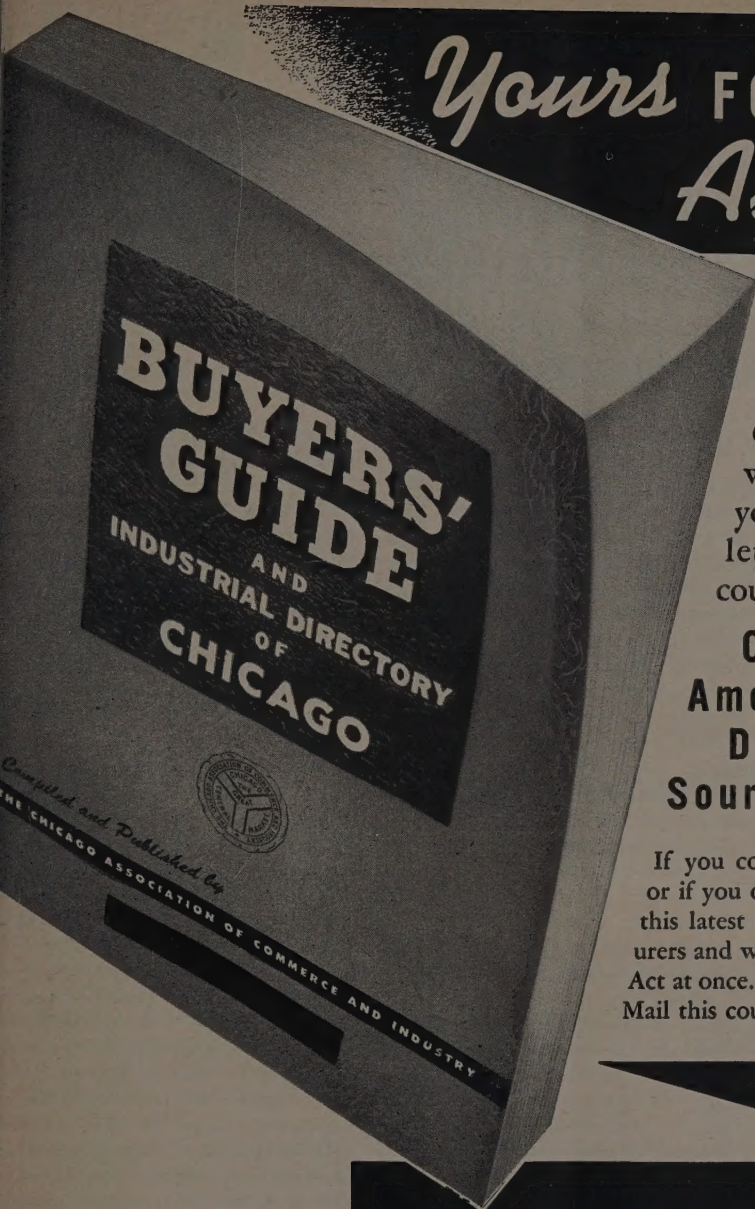
ical Company reports. Other types of cotton goods can be treated to improve wear, wrinkle resistance, and color retention. Man-made chemicals are also being used in the production of many special papers to achieve toughness, softness, good drape and resistance to oil, solvents and water.

• **Machining Hard Metals Simplified**—A new process for machining carbides and hard metals has been developed by Electrosized, Inc., 3910 Wesley Terrace, Schiller Park, Ill. Basically, the process is built around a precision method of removing metal by a series of electrical discharges operating in a coolant bath of dielectric oil. The tool (electrode) is so constructed that the "cut" formed in the work piece by the electrical discharge is a duplicate in reverse of the form on the tool. The tool never actually touches the work since the "cutting" process is completely electronic. In addition to making possible the machining of the hardest metals quickly and economically, advantages claimed for this process include production of difficult shapes to extremely close tolerances and grinding to any desired finish and tolerance without abrasives. Since no heat is built up in the work piece, heat checks are avoided, and it is feasible to heat treat before machining, thus avoiding the problem of distortion frequently encountered in heat treating after conventional machining.

• **"Hollow Thread" for Cancer**—A University of Chicago surgeon, Dr. Paul Harper, has developed a new approach for the treatment of cancer of the pancreas. The surgeon uses a fine, polyethylene tubing threaded around and through the tumor and filled with radioactive iodine. The tubing is inserted in the patient's abdomen by a surgical operation and the ends of the tubing

(Continued on page 31)

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Trends... in Finance and Business



• **The Year Ahead** — Looking into 1955, confidence is strengthened by encouraging surveys of consumers' buying intentions and of the construction outlook, reports the National City Bank of New York in its monthly news letter. The bank substantiates its optimism with reports from the government and some of the major industries.

In automobiles, General Motors' President Curtice predicts that 5.8 million passenger cars will be produced (and presumably sold) in 1955, an increase of a little over five per cent over 1954.

In construction, a joint study by the U. S. Departments of Commerce and Labor forecasts an over-all rise of seven per cent, which will make a record high of \$39.5 billion for the year compared with \$37 billion in 1954. This includes the starting of 1.3 million new homes which would be second only to the 1950 peak. The home building activity would more than offset an expected five per cent decline in industrial construction, the bank reports.

In steel, Benjamin Fairless, Chairman of United States Steel Corporation, estimates that the industry will have to increase its output by some five to 10 million ingot tons just to keep pace with the anticipated rate of steel consumption. In addition, Fairless visualizes a greater increase in production of steel as inventories are brought back to what he calls a more prudent level.

• **More Predictions** — A record shattering 26 billion pounds of meat is expected to be produced during 1955 according to J. M. Foster, chairman of the board of the American Meat Institute and vice president of John Morrell and Company.

That's half a million pounds more than the high reached in 1954.

The electronics industry in 1955 will follow the same fast pace of development and advancement set in 1954 and preceding years, says Dr. W. R. G. Baker, vice president of General Electric. Dr. Baker predicts that 100 more television stations will begin operation in 1955; that retail sales of TV sets will total 5.8 million monochrome units and 200,000 color sets; that 6.5 million radio units will be sold at retail. He expects that production of monochrome television sets will be slightly lower than in 1954 but that the industry will maintain the same record dollar level for 1955 because of increased production of the more expensive color units.

The oil industry can look for a 4.3 per cent rise in total demand for all oils, to a level of 8,460,000 barrels a day, according to John W. Boatwright, assistant general manager, supply and transportation department, Standard Oil Company (Indiana) and a leading petroleum industry economist. He adds that the estimated 18.6 per cent drop in the relatively small volume of exports should be far offset by a 5.3 per cent gain in domestic demand, which he puts at 8,180,000 barrels daily.

Total consumption of new rubber in the United States will be about 1,280,000 long tons, an increase of five per cent over 1954, William S. Richardson, president of the B. F. Goodrich Company predicts. Tire sales for replacement and original equipment will exceed 1954 totals by 4 million units. Over-all industry tire sales amounted to about 95 million in 1954.

In 2033 the average family income

will be the equivalent of \$25,000 in terms of 1953 purchasing power. The average family income in 1953 was \$5,000. This projection is based on a report by the National Bureau of Economic Research and assumes that per capita income will progress in the coming 80 years at a rate as high and consistent as in the 80 years prior to 1953.

The Family: Urban vs Suburban — A special report by the Chicago Community Inventory (University of Chicago) based on information from the 1950 census turns up some interesting data about the people who live and work in Chicago and its suburbs.


For example the statistics show that the "suburban" population is a younger group, with a larger proportion of children, a higher proportion of whites, a higher educational attainment level, a higher proportion of "white collar" workers, and a higher proportion in the upper income group than the "city" population.

The fertility ratio (number of children under five per 1,000 women ages 20 to 44 years) is 424 in the City of Chicago compared with a ratio of 515 in the suburbs. Persons 65 years old and over constitute a somewhat larger proportion of the total population in Chicago (7.6 per cent) than in the suburbs (6.5 per cent). For all persons between the ages of 25 and 44, the median number of school years completed in Chicago was 11.6 while the median for the residents of the suburbs was 12.2.

While this gives some idea of differences between the residents of Chicago and its suburban area, the survey also points out that there is wide variation among component parts of the "suburban" population.

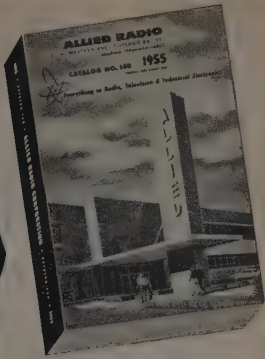
The median age of the population in Evergreen Park is 28.7 years and in Calumet City 29.8 years; however, in Oak Park it is 39.9 years. In Gary only 70.6 per cent of the resident population is white while in Berwyn 51,255 of the 51,280 residents are white. The median number of school years completed by persons 25 years old and over is 12.9 in Wilmette and 13.6 in Winnetka, but only 8.6 in East Chicago and 8.7 in Melrose Park. The me-

(Continued on page 27)



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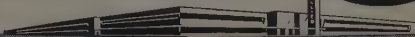
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The American Farmer Is Still Prosperous

By C. R. LASH

***Despite declining farm prices today's farmer
moves ahead and provides a good market***

SOME of our leading economists are sounding a dismal note regarding the farmer's present and future buying power. We have heard—perhaps too often—about the effect the present price squeeze is having upon the farmer's pocketbook.

There is no doubt but that the farmer has been going through the ringer for almost two years. How much longer will this last? Nobody knows the exact answer, of course. Too much depends upon world conditions, and unfortunately on how much of a political football the farm problem will become.

A study of the farm census of 1945 and 1950 indicated a bright picture for those who had products to sell to the farmer and his family. Farm prices were high. Many manufacturers awakened to the fact that there was a segment of our population they had been neglecting—a group of approximately 23 million people who had money. Advertising budgets were increased, sales forces were recruited and sent out into the

farm field. They found farmers willing, even anxious to buy. Machinery, automobiles, fertilizer, insecticides, seeds, building materials, feeds, household appliances, furniture, even new clothes for the whole family, all found ready sale.

Now that declining farm prices are making headlines, the same manufacturers who jumped into the farm market with both feet a few years ago are reducing advertising budgets and pulling in salesmen. Are they smart in doing this? No. Agriculture is still the greatest single industry in the United States.

Why Falling Prices

What are the factors on the dark side of the picture? Why the falling farm prices?

The principal cause of the price squeeze is falling exports while farm production remains at a very high level. The peak periods for farm exports came after World War I and World War II when they ran around \$4 billion a year. After World War I, as now, the volume of exports fell off, resulting in a sharp price decline. But there the similarity of the two periods ends. Farming in the early 1920's and farming now are as different as the two world wars were different. In

fact, the change in farming practices from 1920 to now has been greater than at any other time since John Deere built the steel plow, or McCormick, the reaper.

Farm exports declined steadily from their peak of \$4 billion following World War I to a low of about \$500 million in 1939. During this same period, harvested acres rose to an all-time high of 371 million in 1930-32, then dropped to 330 million acres in 1939. By 1940, only 14 million acres, or four per cent of our cropland, were required to produce our export requirements. Farmers remember this as the period for them of "the long depression," when the prices they received for products, and the prices they paid for goods and services were not in line. Some now are wondering, "Is this where I came in?"

At the end of World War II, farmers were harvesting crops from 355 million acres, and exports were being produced on 40 million, or more than 11 per cent. Then came the end of rationing, full employment, a hungry war-torn world to feed, coupled with foreign aid, and we again boosted our crop acres to 364 million—50 million acres, or 14 per cent, were needed to supply the foreign market.

What is the picture now? The

The author is agricultural technician of the advertising agency of Needham, Louis and Brorby, Inc.

— The average good farm household today buys nearly everything the town or city family buys and often more of it.

Harold M. Lambert photo

decline in foreign trade began to be noticed in 1952. In the fiscal year ending June, 1953, farm exports dropped 31 per cent below the previous year. However, they still totaled \$2.8 billion, or more than five times those of 1940. Exports for the 1954 fiscal year held at around the '53 level, but experts say the downward trend is likely to resume.

Optimistic Outlook

Why then, since farm prosperity seems to be tied up so closely with foreign export, am I optimistic regarding the future of the farm market?

First of all, because I think I know the farmer. Most of my life has been spent working with and for farmers. They are not "hicks"; they are businessmen, and they use the products of industry to become better businessmen. I grant that they are inclined to look on the dark side of things. But visit any one of our thousands of small towns. You will find that the majority of the population of these towns is made up of "retired" farmers. They have fine homes, fine cars, and their standard of living is high. They have made their money in farming.

A rural banker said to me not long ago: "Farming is the only busi-

ness where a man, according to the farmer himself, loses money every year. Yet he is able to pay for a farm, raise and educate a family, live well, and finally retire to town, leaving the farm to his sons who continue to lose money, raise a family, and retire to live in town."

A bright influence in the farm outlook is the fact that our population is increasing at the rate of over 2.5 million annually. By 1960 there will be 175 million people in the United States.

At present there are approximately 2.2 harvested acres per capita in the United States. Theoretically then, if the farmers produced at the same rate as now, it would take 5.5 million additional harvested crop acres each year just to supply our population increase. Those acres are not available. There is little more new land to farm. Our present crop acres must produce the food and fiber necessary for our people. In fact, for good soil and water conservation practices, 20 to 30 million of these acres should be converted to something other than grain crops—preferably grass.

The best illustration of what our population increase will mean to the farm market was given by Don Ross, merchandising manager for SUCCESSFUL FARMING magazine. He

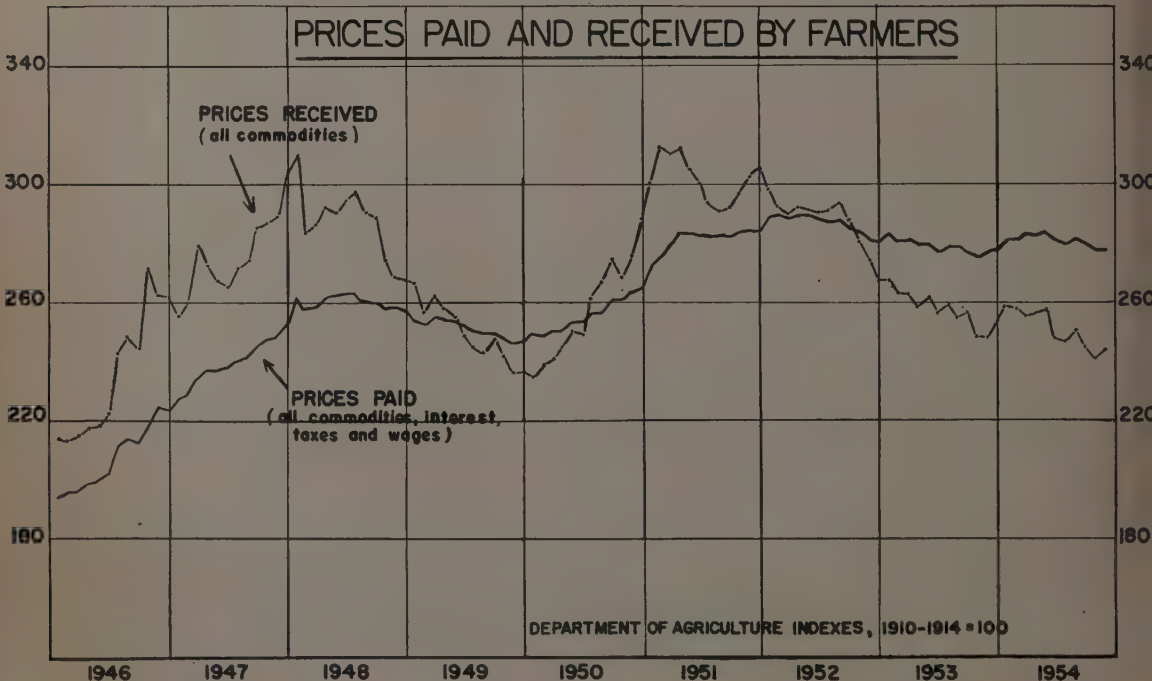
said: "To provide food for our increased population in 1975 will require the production of an additional number of pigs equal to the 1950 production of Iowa and Nebraska; an extra number of cattle equal to all those produced in 1950 in Oklahoma, Texas, and Minnesota; an extra number of lambs equivalent to the 1950 crop of Nevada, Wyoming, Utah, and Montana; an extra volume of milk equal to that produced in 1950 in Wisconsin, Michigan and New York; and an increased number of eggs equal to those produced in California, Kansas, Missouri, Illinois, and Pennsylvania. This is over and beyond our present high farm production. It cannot come from any big increase in acreage, yet you and I are mighty sure that farmers will produce what the market requires, and they will continue to rely heavily on science to help do the job."

Doesn't Mean Ruin

This is why the possible loss of part or even all of our foreign market does not necessarily mean ruinously low prices to the farmer.

Farming has become a commercial business. It is no longer a way of life as it was early in the settle-

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Your Next Promotion May Kill You

Medical surveys show most executives don't enjoy normal good health; here's what some firms are doing about it

By DR. W. SCHWEISHEIMER

THE men who manage the wheels of industry are overlooking an important cog—their own personal health.

Recent medical checks on groups of executives show that only one out of five is enjoying normal good health; that the average businessman is six years before his time, and that most of his physical troubles could be avoided through periodic check-ups and treatment.

While no executive in his right mind would hold a loaded revolver to his head and fire it, surveys of his group show that many are doing an equally thorough but less spectacular job of killing themselves — by working long hours and ignoring their health to earn promotion to a job that is beyond their capacity.

Dr. R. C. Page, general medical director of Standard Oil of New Jersey, describes a case of this type from his experience.

Without regard for his own physical or mental well-being, the innate urge to go forward and become successful allowed a relatively young executive to accept working assignments which required not only a full working day at the office, but evening and Saturday work as well. This situation went on more or less continuously for ten years. The executive frequented the company's medical department, although only for minor complaints. He was always in a hurry. His one object was to succeed.

At last, the big opportunity came—a position not only as head of a department, but offering the oppor-

tunity to become a director as well. And then what happened? Fear and consternation got the best of him, and he collapsed mentally.

Fortunately, a close family friend, a physician, hospitalized him, and he responded to therapy. During this entire period, Dr. Page says, it was not easy for him to protect the employee and, at the same time, satisfy the company as to the nature of his illness. Likewise it was difficult to educate the patient as to the true nature of his condition. The problem was to so handle him from a medical point of view that he would not allow his natural aggressiveness to take him beyond his physical and mental ability to perform effectively and efficiently.

Another Setback Fatal

Should he suffer another setback, it is quite probable that he will be lost. He would no longer be able to assume major responsibility; his prestige in the company would suffer; his personal ego would collapse. He would probably become an introvert and end his career with the company in a subordinate position.

To date, Dr. Page has been successful in his endeavor. The employee is gainfully employed as a top-notch accountant, with limited managerial and organizational responsibilities. He performs his duties to the complete satisfaction of his superior and himself.

Consider these two case histories from a survey of executive health programs made by Dr. George M.

Saunders, medical director of Socony-Vacuum Oil Company:

A periodic examination of a 45-year-old department head of a large food processing company revealed albumin and a few red cells in the urine. An intravenous pyelogram was made. It turned up a defect in one kidney which was shown at operation to be caused by a malignant tumor. The operation eliminated the trouble and saved this man's life. Today, five years later, he is well, happy, and successful.

A dynamic 40-year-old executive of a large chemical company, considered by himself and associates to be in perfect health, took his periodic examination. All the findings verified his optimism except a chest X-ray which showed a faint shadow in one lung. On further study it turned out to be active tuberculosis. The executive entered a sanatorium for treatment and within a year was back on the job full time. Had that condition gone undetected for another year, as it might have without the periodic check, it could have progressed to a point where he would have been incapacitated for many years.

During the past several decades, reports Dr. Saunders, programs for protecting and promoting executive health have been growing in number. Almost all of these are based upon periodic health inventories. Dr. Saunders personally recommends a biennial examination for executives under 40, an annual examination for those between 40 and 60

(Continued on page 38)



The Curtiss Pusher, a 1910 flying machine



Eastern Air Line's first plane, 1928

Super Planes And Their Place In Aviation's Future

THE airplane has been developed as a useful vehicle in a much shorter span of years than any other means of transportation.

This rate of progress will continue to accelerate in the future. The application of jet propulsion to new airframes will permit much higher practical speeds than heretofore possible and thus open new travel opportunities for business and pleasure.

But why has this country, with its tremendous background of knowledge and experience, not progressed as far as Great Britain in the adaptation of jet propulsion to commercial aircraft?

There are four fundamental factors which have delayed this progress, and these can be best outlined as follows:

1) Before we can satisfactorily use jet propulsion on commercial transport aircraft, we must have a commercial jet engine. Jet engines in the past have been strictly designed to meet military requirements. They combine light weight

The author is vice-president, engineering, of Eastern Air Lines, Inc.

and great power, have a terrific appetite for fuel, and are still extremely noisy. The latter two characteristics are not attractive for commercial application.

2) The noise problem is perhaps the most important retarding factor in view of the nearness of most of our commercial airports to heavily populated areas.

Solution At Hand

It is amazing to find that very few people really know anything about noise, but developments are now going on which indicate that some partial solution to this problem is at hand.

There are three basic sources of noise in the jet engine—that caused by the compressor whine, the combustion roar in the nozzle box, and the tail pipe exhaust disturbance

caused by its high velocity when mixed with the surrounding slow speed air.

3) Another major factor is the money involved in designing and building commercial jet transport. The first plane of a new line will cost the manufacturer a capital expenditure of from \$25 million to \$30 million before it receives an "approved type certificate" from the Civil Aeronautics Administration. Add to that another \$50 million to \$70 million for production tooling. The result is a capital cost of between \$75 million and \$110 million before the first commercial airplane can be delivered to an airline. No manufacturer is going to spend that much money unless he is sure of a minimum market to absorb this expense, or a military contract.

4) The fourth factor is that the initial cost of a jet transport is ex-



The Lockheed Super "C" Constellation, 1954



The jet propelled airliner, 1977



multi-engine transport helicopter



An Air Force Strato Jet, 1952

U. P. photos

Supersonic or atomic air transports coming within 50 years

ected to be between \$4 million and \$5 million. That, coupled with high operating costs, has hindered the acceptance of commercial jets by airlines. There is some optimism that with proper design and the use of improved engines, operating costs could be brought into line.

Another factor is that of flight safety. The air transport industry has established a flight safety record second to none, is very jealous of its record, and intends to keep it. Before getting into the jet transport business, it wants to be assured that there is a sufficient background of military experience with these new types of engines to be able to guarantee the traveling public dependable and safe high-speed transportation.

The next 50 years will probably see a complete change to supersonic jet powered air transportation. It

may well be that the harnessing of atomic energy will further revolutionize military and civil aviation before the centennial celebration of man-controlled powered flight in the year 2003.

Insurmountable Problems

And yet today, problems of commercial supersonic flight appear almost insurmountable.

We will have to devise adequate protection from solar radiation at high altitude, protect against an air temperature rise of several hundred degrees due to skin friction, and still maintain a livable atmosphere within the cockpit. We will need cabin air conditioning to provide standard air with the required oxygen and humidity regardless of flight altitude. We will have to learn how to keep fuel from boiling and foam-

ing at the greatly reduced atmospheric pressure experienced at high altitudes. In addition there will be the problem of power plant accessory cooling including generator brush life, and many others.

But persevering research and time will overcome these difficulties. There is also the problem of cost. By doubling high subsonic speeds in the order of 600 to 650 miles per hour, to 1,200 miles per hour and up, the operating costs will rise as the cube of the speed increases, or in the case of doubling—eight times. Even though travel time is cut in half, it is questionable whether the air traveler would accept a great increase in ticket price except for long flights when the time can be appreciably reduced from, say, ten hours to five hours.

The solution lies in hypersonic
(Continued on page 26)



Aerial view of Technology Center; over 200 slum dwellings were removed

A Modern Community Grows In Chicago

On Site of Former Slum Area

Here's the story of the birth of Technology Center and of a diminishing slum



Two of the new school buildings now in use



The proposed architecture and design building



the Mecca Apartments removed in 1951



Blighted buildings, typical of the 200 torn down

UNLESS they happen to live nearby, most Chicagoans are unaware of a change that is taking place on the near south side. That change involves the rebirth of the area in a manner that fortifies the hopeful premise that good neighborhoods, if given a good start, have growing and spreading powers equal to those of the slums.

At the turn of the century, the near south side was one of Chicago's most select residential neighborhoods. Fifteen years ago it had reached the bottom; it was one of the city's worst slums. Today, it is on the road back, and according to James C. Downs, Jr., the mayor's housing and redevelopment co-ordinator and an expert on real estate values, it is destined to become one of the city's best areas within a relatively short time.

The rehabilitation phase began in 1940 when Armour Institute of Technology and Lewis Institute were

merged to form Illinois Institute of Technology. After due consideration, Illinois Tech's trustees abandoned their search to locate their new institution in a more desirable section of Chicago and to stay put at the old Armour Tech location around 33rd and Federal streets.

After wartime building restrictions were relaxed, Illinois Tech promptly started to build. It has been building ever since and will continue to do so for a good many more years.

The decision of Illinois Tech. to

remain in the area convinced the trustees of neighboring Michael Reese hospital to follow suit instead of seeking another location for its multi-million-dollar expansion. Then these two programs served to crystallize plans of the Chicago Housing Authority, and that governmental body now has projects well underway in the neighborhood. All of this activity and the 15-minutes-to-the-Loop location of the area was in large measure responsible for the decision of the New York Life In-



the dining and shopping center



One of two completed campus apartment houses

insurance Company to undertake the great multi-block Lake Meadows apartment development, now under construction immediately east of Illinois Tech.

Last fall the Chicago College of Optometry moved into new headquarters across Michigan Avenue from the Illinois Tech campus. It has completed one of several new buildings it is constructing. Another school, the Vandercook School of Music, moved from Chicago's west side into the same block last summer. There are now relatively few blocks within the neighborhood that are not being rebuilt, or for which such plans are not now in the making.

Tech's postwar campus is spread over 22 city blocks bounded on the south by 35th Street, on the north by 30th Street, on the east by Michigan Avenue, and on the west by Federal Street.

Progress Shows

Development of the campus has been accelerated in the past two years to the point that the current visitor no longer has to use his imagination to visualize the outcome. Crumbling mansions which had been converted into multiple dwellings and other run-down buildings that crowded wall-to-wall over most of the available land, have been vanishing at the rate of one per week. Where new, shiny steel and glass buildings

have not been built, there are open spaces, trees, shrubbery and grass.

Currently, Tech is in the middle of a fund-raising campaign to finance construction of a new building for its Institute of Design, its department of architecture, and a new department of urban and regional planning. The building will be the nineteenth modern structure erected on the enlarged campus since 1946.

Construction of this newest building will be underway in time for its use next fall. Two more new IIT buildings are now on the drawing boards, and they are planned for completion by the fall of 1956. One will be an electrical engineering research building under which will be buried the first nuclear reactor ever built for strictly industrial research use. The other will be a classroom building that will memorialize the founder of Lewis Institute.

Since the 1940 merger, Tech's assets have grown from about \$6 million to more than \$27 million. The current enrollment is nearly 2,000 full-time day students and more than 4,500 others in evening classes. For more than five years, Tech has been enrolling more engineering students than any other school in the United States. A privately supported co-educational institution, Tech also has both graduate and undergraduate courses in the sciences, humanities, and arts.

Architectural Forum magazine edi-

torialized last year: "Illinois Institute of Technology is growing to be the best architectural expression of a technological college in the world . . . perhaps it is the only really consistent one." The school's new buildings are of a consistent steel and glass, horizontal-line design. All of them, and the carefully plotted landscape out of the campus, have been designed by Mies van der Rohe, the noted architect who heads the school's department of architecture. To date, they have cost slightly less than an average of \$10 per square foot to build, less than half of the expense required for the familiar monumental structures found on many college campuses.

Completion Estimates

An Institute official estimates that completion of the campus plan can be achieved at an expenditure of about \$20 million and within ten to 15 years. Approximately 20 more buildings must be erected to replace the six original Armour Tech buildings that are still being used, and 11 other old or temporary structures that are scheduled for demolition as quickly as IIT can accumulate the necessary funds. Progress is expected to be stepped up in future years because in the early stages of the campus redevelopment the Institute's first spare funds have had to be

(Continued on page 25)



A unique view of the Lake Meadows apartment development



A General Electric innovation is a wall refrigerator-food freezer combination



An "up-side-down" refrigerator-freezer combination by Admiral Corporation

DESIGN For Better Living, Added Sales

By DAVE CHAPMAN

IN asking the question "Where is the appliance industry going?" one can hardly take a short-sighted view toward new lines of merchandise for 1955 or 1956. If you want to plan intelligently for the years immediately ahead, you had better have a good idea of where you want to be in 1960 or 1967.

We can hardly know in what direction we are going unless we know where we have been and where we are today. Just a few figures drawn from surveys of the appliance industry made early this year will make the point. In the field of washers we have

achieved a 78 per cent saturation of the market. We have reached a 90 per cent saturation point in the market for refrigerators, 98 per cent in radio. Even in the most optimistic interpretation these figures point out that there is the unpleasant choice

of waiting for today's well-built goods to wear out before there is a new buyer, or of producing something so demonstrably better as to justify the homemaker's disposing of an appliance for the sake of buying something better.

And here we arrive at the heart of the matter. Through years of development both functional and structural qualities of appliances have been used as major sales points. Home appliances and equipment have been built so well that they will function effectively and stand up under hard usage for many years. In addition an excellent merchandising job has been done.

Now there are two choices. New markets can be made by creating



The trend to blend appliances with interior decoration and color demonstrated with an International Harvester air condition unit

The author is head of his own firm of industrial designers. This article is a condensation of his address before the national convention of the Institute of Appliance Manufacturers.



"Tomorrow's Kitchen—Today" designed by Hotpoint Company, Chicago, as part of its golden anniversary celebration during 1955 uses only components now in production. The unit contains everything from clothes washer to a disappearing toaster

"synthetic obsolescence" by giving old products new faces (which is "styling") or completely fresh, untouched markets with new products to serve new function (which is in large part "design") can be created.

I have used here two terms — design and style — which I will use again, but which may offer some confusion. So, at the risk of being pragmatic, I would like to define these terms in order to develop a philosophy of planning and design as opposed to the opportunistic aspects of styling alone.

Good design is a basic and inherent quality, the visual synthesis of a well built structure, agreeable and efficient in function.

Style and Fashion

Style, or fashion, is a visual or functional quality to which the consumer has been conditioned — a quality built on a system of vagaries whose borders and concepts change with the changes in our physical and emotional world.

These concepts do overlap. Good design is basic and fundamental. Style is an index to a consumer's feeling of security and should not be discounted as nonsense. Since good design is so basic, it cannot be washed over an existing form as though it were a coat of paint. Since it is an inherent characteristic of a good product, it must be developed at management level to achieve its full worth.

For years style and minor engineering considerations had been applied to the field of home laundry equipment while manufacturers watched the saturation of their market rise steadily. But it was the combination of creative engineering and mature design consideration that opened the cash register to the new market for automatic laundry equipment appliances. That moved them from the basement into the kitchen, stepped up unit dollar sales from about \$70 to more than \$200 and breathed new life into the industry.

There is one basic reason for the quick acceptance and business success of automatic home laundry equipment. Many skeptics claimed that homemakers would not stand the wide differential in price between the manual and automatic units. Others said that the homemaker would not dispose of existing equipment just for the sake of getting a new product. But homemakers "dug into their mattress money" to buy these new units because they fitted perfectly into the new pattern of life. Here was the answer to the need of the housewife in the servantless home. And to industry, here was a new market and a new product to do a job in a way it had never been done before.

As you plan your improvements or new products, how much attention do you pay to the needs and desires of the people who will use them? How much do you study their way of

life? Are you perhaps too much preoccupied with production, tools and statistics that perhaps you have overlooked your customer? Are you too much preoccupied with your competition that you have overlooked your customer?

If we do not analyze the homes and the ways of life of people in 1965, we cannot very well plan appliances for those people and their homes. And in the period between now and then, the industry will be making substantial investments in tools, equipment, dies, advertising and sales efforts which should move it closer to a known end result rather than a short-term, interim investment.

As manufacturers we must turn our research to a study of people and their wants and needs. We must devise and create new products with new abilities to serve new functions rather than trying to satisfy the consumer market with superficial trim on an old facade.

If we are manufacturers of automobiles we must study drivers and their wants and needs for safety and comfort. We must study roads and streets and conditions under which these automobiles will operate and break ourselves of our preoccupation with the study of the designs of foreign manufacturers catering to a market foreign to ours in every detail and the study of designs of aircraft and the futuristic doodle-drawings of the Sunday artist.

Suit Environment

If we are architects we must express in our buildings those structural, physical and aesthetic philosophies more individually suited to the physical and climatic changes in the environment of each building.

In our floor plans we must plan for a way of life, not for a way of construction. We must design homes for the people who live in them, not for the people who build them.

Because of the custom characteristics of architecture, there has been a fluidity and expression of individuality in home design not found in mass production where tooling costs require vast multiples to amortize costs. Since appliances will fit into the kitchens and homes we are building and planning, it might be well to study these plans.

Everyone is familiar with the general trend in this country toward a

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American Farmer Still Prospers

(Continued from page 14)

ment of our nation. Today most of our agricultural production is for sale rather than for use by those who produce it.

The farms in the United States have great extremes in buying power. The 1950 census lists 5,382,162 "farms." Of this number approximately 1.7 million or 30 per cent are listed as other than commercial farms. They are part-time farms, residential farms, institutional farms, and experiment stations.

Commercial Farms

That leaves 3,703,132 commercial farms. But not all of these are good customers. More than 700,000 sell less than \$1,200 worth of products from the farm per year. This narrows the primary prospect list down to approximately three million truly commercial farms. The advertising and sales approach must be directed

to these farmers as businessmen — and many of them are operating substantial businesses. They always will be in the market for products they need to help them become better farmers. The following table breaks down the nation's commercial farms into income groups:

Group	Number of Farms	Value of Products Sold
A.	105,512	\$25,000 or more
B.	386,124	\$10,000 to \$25,000
C.	725,557	\$ 5,000 to \$10,000
D.	882,322	\$ 2,500 to \$ 5,000
E.	895,889	\$ 1,200 to \$ 2,500
F.	707,728	\$ 250 to \$ 1,200

The top income group of approximately 103,000 farms represents only two per cent of all farms, but accounts for 25 per cent of all products sold. They are large-scale operators employing a great many hired laborers. The average investment in land and buildings is well

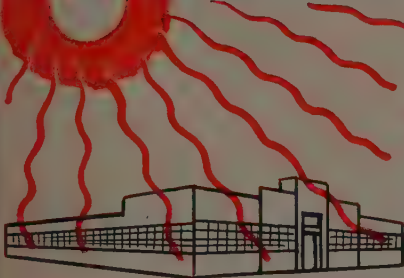
over \$100,000 per farm. Investments in equipment of \$30,000 to \$75,000 per farm are not uncommon.

The remaining 3.6 million commercial farms are operated mainly by the farmer and his family, with the possible assistance of seasonal hired labor. They form the bulk of the farms in this country, both from the standpoint of number of farms, and the amount of production.

They account for more than 71 per cent of all farm products sold. Their average investment in land and buildings is approximately \$18,000. The investment in livestock and equipment per farm is almost an equal amount.

Another encouraging factor is that the number of farms operated by the owner is at its highest point since the Bureau of Census started tenancy records in 1880. The 1950 figures show that only 26.7 per cent of our farms are operated by tenants. This includes the sharecroppers in the south who more closely resemble farm laborers than tenants. The high point in tenancy was in 1930

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when 42 per cent of our farms were operated by tenants.

While a great many tenants are good farmers, the owner operator naturally is more interested in the general improvement of the farm. He is more likely to purchase fertilizers, weed killers, and equipment, than the tenant farmer. This is particularly true of building and fencing materials, water systems, household appliances, and things of a permanent nature. The increase in the number of owner-operated farms means a better farm market.

The farmer is a businessman. He will spend money for those things that will make him money.

Last year he spent — compared to the average spent per year during the 1935-1939 period — five times as much for trucks, tractors, and automobiles; almost six times as much for machinery and equipment; four times as much for fuel and other operating expenses; almost four times as much for seeds; five and a half times as much for fertilizers; more than six times what was spent for feeds; six times that spent for buildings not including the home; and three times as much for labor. That adds up to a lot of business — more than \$22 billion worth.

Increase Efficiency

Like any well run business, the farmer must be efficient to survive. With the aid of science and industry, he has become the world's most efficient farmer. He has increased production by 44 per cent over the 1935-1939 average — without farming any more acres and with fewer man hours.

The high degree of mechanization is almost beyond belief. New ingredients added to commercial feeds have revolutionized the feed manufacturing business. Livestock and poultrymen have greatly increased their feeding efficiency with these new feeds. The use of chemical weed killers, insecticides, and pesticides has saved the farmer many millions of dollars each year.

Today's farmer is moving ahead, and he knows he must spend money to do so. Furthermore, his savings are high, his debts are low, his credit is good. What more could be asked of a sales prospect? In 1953 the farm gross income was estimated to be

more than \$30 billion. The net income is placed at more than \$12 billion. This is money he can save or spend as he sees fit. The Bureau of Agricultural Economics reports that the liquid assets of the farmers — currency, bank deposits, U. S. savings bonds — total \$20 billion.

Farmers own approximately \$8 billion worth of real estate, with a mortgage debt of \$7.8 billion. They own personal property valued at \$70 billion, or a total of \$156 billion worth of property. On this total they owe only approximately \$15 billion — obviously a good credit risk.

Standard of Living Up

The improved practices used by the farmer have carried over into the home. The Department of Agriculture reports that the standard of living of the average farmers rose 54 per cent between 1940 and 1950, and that it is still going up. The improved standard of living has this result: The average good farm household today buys nearly everything the town or city family buys, and often more of it. The farm market then becomes a double-barreled market — one of the best of any segment of our population.

This farm market is not in any danger of drying up. The farmer's standard of living is high, he is well informed and willing to adopt new practices. A large majority of them operate their own farms, and operate them as any good businessman would own and operate a commercial business. They are financially sound. And finally, our population increase is rapid. These extra people must be fed. That is the farmer's job.

Those who agree with this optimistic opinion of the farm market will use every tool at their disposal to sell that market. Our American business system is founded on three things: mass production, mass purchasing power, and mass selling. Selling is the force which brings the other two together. It's the main-spring which keeps the whole system ticking.

There is no substitute for selling. It is management's most important duty to keep its sales forces at top notch, to provide them with the kind of products that will perform

up to the salesman's promises, and to give these salesman the finest tools to work with.

One of the most valuable of those tools is advertising. A salesman tells his story to as many potential customers as he is able. But advertising, placed in the right media, at the right time, reaches a custom-made audience. It can deliver the salesman's message to millions of potential customers — many, many times more than any salesman could reach in a year's time.

In other words, the farm market is there. It is up to the manufacturer whether or not he gets his share.

Modern Community

(Continued from page 20)

largely spent in acquiring the present property.

About 90 acres of the 110 within the boundaries of the development have been acquired to date, and most of them have been cleared. Negotiations have had to be completed to buy many small parcels of property from hundreds of different owners. Most tenants on the purchased property have had to be given aid in relocating. The buildings had to be wrecked, the land cleared and then improved — all at a cost of time and money before the new buildings could be financed. Fifty-seven buildings were wrecked during the past year, and 395 families were relocated.

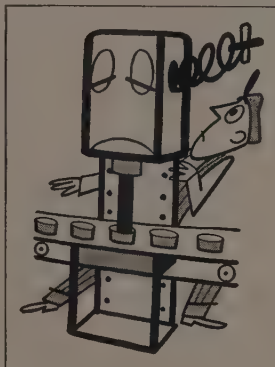
The Illinois Tech campus is called Technology Center, a name that is becoming more suitable as the area develops into a community with its own postoffice, its own shopping center and a city block of special housing for married students, faculty members, and others on the school's staff. Two modern apartment buildings have been completed within recent years and two more will be ready for occupancy around April 1.

Located at Technology Center, in addition to the school, are a number of affiliated institutions. These include the Armour Research Foundation, founded by the Institute to handle sponsored research programs, and now one of the world's largest industrial research organizations; the Institute of Gas Technology, an educational and research facility operated by Illinois Tech for the gas utility industry; the Institute for Psychological Services, which per-

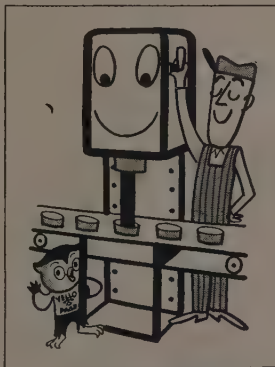
forms personnel testing and placement services, and the research laboratories of Association of American Railroads. The center has become a work and living area for more than 3,000 students, faculty people, technicians and scientists in addition to being an area of classrooms and laboratories. Ten years ago, it was an area of general dilapidation.

The proposed new architecture and design building is to be situated between State and Dearborn streets along 34th Street, the site of what was once one of the nation's most

famous slum buildings, the Mecca Apartments, erased by IIT in 1951. The building will be the first of its kind to have a steel roof plate suspended from exposed steel girders, creating an interior great hall that will be free of supporting columns. It will measure 220 feet by 120 feet and have 53,000 square feet of floor space. The \$750,000 building will permit the Institute of Design, which became a part of IIT in 1950 and is located at 623 N. Dearborn St., to move to the south side campus.



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Super Planes and Aviation's Future

(Continued from page 17)

flight in the order of several thousand miles per hour, using rockets which carry their own oxygen. This would permit flights at over 100,000 feet altitude where the air is extremely thin and its resistance is minimum.

No one can deny that our present technical knowledge supported by further research might not result in practical hypersonic flight before the next 50 years roll by.

An optimum, however, is eventually reached with any form of transportation. Land and sea means of travel have reached a high degree of development stability, and it may well be that aircraft design utilizing the characteristics of advanced rocket engines will come close to doing the same thing.

This, however, is still far off—and so is space travel.

By that time we may not recognize airplanes as we know them today. Wing and fuselage shapes can roughly be classified in three categories. First, the law subsonic aircraft, which is what we have today, have relatively straight thick wings and stubby fuselages; second, the high subsonic and low supersonic aircraft must have highly swept, fairly large wings of thin sections, with streamline bodies, and, third, the hypersonic vehicles will have much smaller wings, very thin, and comparatively large bodies with a very high degree of cleanliness.

Sonic Barrier

We have today crossed the sonic barrier by the application of brute force. We must now learn to do it economically by changing shapes, forms, and operating altitudes.

Whether you are producing tractors, automobiles, toothpaste or selling air transportation, you have to give the people what they want and need, when they want it, make it the best way you know how, and sell it at a price they are willing to pay.

There is one, and only one, major difference between manufacturing and transportation. When a product is manufactured, if it is not sold today, it can be sold tomorrow, at a discount if necessary. In transportation, however, if a seat is not sold on

schedule, it is completely lost without resale value, while operating costs go on.

This hard fact is the reason why an airline must carefully select the size of its aircraft, determine its operating schedules and frequency to obtain the highest possible ratio of seats sold to seats available, and at the same time render adequate and satisfactory public service.

Then there is the problem of airport size for jet transports. Obviously, we cannot keep on purchasing runway mileage. Jet transports will have to be designed to utilize our present facilities. This is easy with regard to takeoff because all that is necessary is an increase in power; but for landing when propeller braking is not available, a means will have to be devised to reverse the engine thrust because jet transports are very clean aerodynamically and, therefore, have very little drag.

Thrust reversing will be particularly important when runways are icy.

Helicopters In Future

Helicopters will become increasingly important in the air transport industry. The greatest handicap of the airplane today is the time it takes passengers to get from the heart of great cities to outlying airports. Often the ground transportation time to and from the airport exceeds the actual flight time with modern aircraft for distances up to 150 to 200 miles. Thus, the resulting overall speed from point of traffic origin to point of destination does not reflect to the fullest measure the speed advantage of the airplane as a means of transport used to supplement available means of ground transportation.

This is especially true where high-speed highways have been built to utilize the high speeds of modern autos and buses.

The helicopter is the only air vehicle that we can foresee that can successfully tap the tremendous intercity market.

One possibility is to use helicopter transports operating from heliports located much closer to downtown areas than airports can ever

be. It is one thing to talk about 300 to 400-mile-an-hour airplanes, but quite another to deliver that kind of service in local schedule operation with fixed wing aircraft. It is, therefore, conceivable that the helicopter, or perhaps the convertiplane (which is a combination of fixed wing aircraft and helicopter) may eventually replace our present twin-engine aircraft in local schedule operation.

Another factor influencing the development of helicopters is that in a time of national emergency the helicopter has no peer when ground installations, such as rail terminals, airports, and bridges, have been destroyed, and waters have been contaminated by radioactivity.

Multi-engine transport helicopters may be available before 1960, and the advent of such helicopters will mark the beginning of a new era in air transportation of tremendous importance to the smaller cities.

Thus, we will have jet transports at high speeds for long flights, turboprop-equipped transports for air coach and air cargo operations, and the helicopter for feeder and local service schedules later on.

The economic trends will challenge the airline industry to continue the transition from furnishing individualized air travel to a truly mass means of transportation, able to serve all the people at a price they can afford to pay.

However, even today with our broader knowledge of aerodynamics and the laws which govern the science of aviation, it is impossible to arrive at exact solutions by converting and manipulating the laws of physics by arithmetic and mathematics.

Basic Assumptions

One must be able to define clearly the basic assumptions and characteristics that are fed into computing machines to obtain practical solutions. This ability is not taught in schools or assured by a college diploma. It comes only from the application of common sense, experience, and lessons learned from hard knocks. Most of the assumptions that we use today were not even dreamed of when the Wright Brothers first conceived their flying ma-

chine. These new machines have come into existence through service experience, continuous testing, evaluation of new thinking and a higher regard for the law of gravitation which has no mercy for those who fail to recognize it. Fortunately, indeed, was the pioneer in the early days of aviation who made a mistake and lived to correct it.

We have seen since the end of World War II almost a total switch to the new jet type of power plant for military use, where time—as defined by speed performance—is a basic requirement for national defense.

Air transport will exploit this knowledge and experience to furnish to the air traveler greater speed and comfort.

These attractive transportation qualities continuously compel the aeronautical engineer to raise his sights and drive him to conceive new ideas to make aviation the most dynamic force of our age.

It has changed the geopolitical concept and our economic way of life as a nation with respect to the world, and with our increasing knowledge in rocketry—may even change our relation to the universe.

Trends In Finance and Business

(Continued from page 11)

dian income received by families and unrelated individuals in 1949 was \$6,325 in Park Ridge and \$5,879 in Winnetka, but only \$3,362 in Chicago Heights and \$3,328 in Gary.

- **Prospects for College Grads** — The outlook for the college gradu-

ate continues bright according to a survey just made by Dr. Frank S. Endicott, director of placement at Northwestern University.

A group of 152 large and medium-sized companies reported that they will hire 19 per cent more engineers and other technical graduates and two per cent more non-



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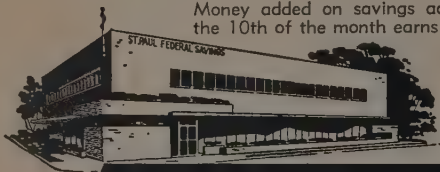
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technical graduates than in 1954. Average starting salary in all fields, including sales and general business training, will be \$341 a month, \$6 higher than last year. Beginning engineers will be offered an average of \$361 a month and graduating accountants \$332 a month.

The graduate hired five years ago who has made average progress has almost doubled his starting salary, the survey reports. He started at \$255 a month and now is earning \$508. In the field of sales, average salaries have risen from \$254 to \$547 a month. The 1949 graduates chosen by their companies as the outstanding men hired in that year have increased their starting salaries by 240 per cent and now are earning an average of \$639 a month.

Not one of these top employees had below average scholarship records, according to Dr. Endicott. The large majority of them had above average or very high grades in college. Characteristics which made these men outstanding were listed by their employers in this order: ability to work with people, ability to get things done, good mental ability, and initiative.

The survey showed also that the majority of business executives today are college graduates. Some 74 per cent of the presidents of 126 companies reporting had earned college degrees. About 73 per cent of the 1,211 vice presidents in 123 companies were college graduates, as were two-thirds of employees who report to vice presidents.

• *The Female: Urban vs Suburban* — The city gal takes more responsibility and makes more money than her suburban counterpart the Chicago Community Inventory report shows. The median, personal income for the Chicago female was \$1,764 and \$1,474 for the Suburbanite. The Chicago female is head of the house in 11 per cent of the homes but only about seven per cent of suburban households are headed by a female.

More suburban females have husbands than the city females. For females residing in Chicago, 60 per cent were married and three per cent were separated, while in the suburbs, 67 per cent of the females were married and one per cent separated.



Industrial Developments

... in the Chicago Area

INVESTMENTS in new construction, expansion of existing plants and the purchase of land and buildings for industrial purposes totaled \$16,932,000 in December, bringing the total investments for 1954 to \$231,683,000. These figures compare with \$16,022,000 in December, 1953, and \$141,902,000 for the year.

Universal Atlas Cement Company, subsidiary of U. S. Steel Corporation, with its principal plant located at Buffington Harbor, Ind., will construct a new producing unit adjacent to its present plant which will have a capacity of more than three million barrels of cement annually. The combined facilities of the present plant and the new unit will total more than 10 million barrels a year.

Sinclair Refining Company is making some large scale additions to its fluid catalytic cracking unit in East Chicago, Ind.

Calumet Industrial District Company is completing construction of the first 250,000 square foot unit at its multimillion dollar food distribution center on the west side of Stony Island avenue at 95th street. The second unit is well underway, and will be ready for occupancy in the spring. The Kroger Company has leased, and will operate, 90,000 square feet of the first unit, the balance being operated by Calumet Industrial District Company itself. The large warehouse is served by the Chicago, Rock Island, & Pacific Railroad, with cooperation on switching from the Nickel Plate Railroad. This will be one of the largest operations of its kind in the country when all 12 units which are planned are completed.

F. B. Redington and Company, 12 S. Sangamon street, will erect a new plant at 3000 St. Charles road,

Bellwood, where it will relocate when the construction is completed. The plant will cover an area of 60,000 square feet. The company manufactures cartoning, packaging, wrapping, and labeling machinery. Albert E. Ersimon Jr., architect.

Waylite Company, a subsidiary of Interlake Iron Corporation, has established a plant at 108th Street and the Calumet River. The company makes a light weight construction aggregate out of slag.

Dudek and Bock Spring Manufacturing Company is erecting a new building to house its manufacturing and office facilities at 4016 W. Grand avenue. The building will contain 40,000 square feet and should be completed in January. The company makes springs, wire forms, metal stampings, and butt welding. A. E. Strobel, architect.

Production Finishers, Inc., 526 W. 18th street, is erecting a new factory building at 4430 W. 14th street where it will relocate its japanning works when the construction is completed. The building will contain 20,000 square feet of floor area.

Algonquin Tool and Manufacturing Company, 4820-22 W. Flournoy street, is erecting an addition of 14,000 square feet to its plant which will be used as storage space. William F. Goulding, architect.

Ideal Tool and Manufacturing Company, Inc., 5825 S. Western avenue, will relocate in a new plant now under construction at 5615-57 S. Claremont avenue. The new building will contain a floor area of 25,000 square feet. The company makes special machinery, tools, dies, fixtures.

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New Light Amplifier

Direct amplification of light without use of electronic tubes has been achieved by scientists from the General Electric Research Laboratory, Schenectady, N. Y. The GE researchers have demonstrated that it is possible to increase the brightness of a projected photograph by passing an electric current through a special phosphor cell used as the viewing screen. Dr. F. E. Williams (right), head of light generation studies at the GE Research Laboratory, said the light-amplifying phosphor was created by D. A. Cusano (left). Discovery of this light amplifier may be the clue to achieving "picture-on-the-wall" television screens according to GE scientists. While no immediate application of the light amplifier is anticipated, its importance lies in the new scientific knowledge of light amplification in a simple phosphor film.

cable, is having a building built to its specifications at 6035 S. Knox avenue which will contain 15,000 square feet of floor area. Northern Builders, general contractor; Bennett and Kahnweiler, broker.

• **Hub Stamping and Manufacturing Company, Inc.**, is erecting an addition of 11,000 square feet to its plant at 1212 N. Central Park avenue. William Campbell Wright, architect.

• **Hollymatic Corporation** is presently expanding its productive facilities with a new factory addition to its plant at 433 W. 83rd street. The company manufactures hotel, club,

institutional and restaurant equipment and supplies. Homer G. Salor, architect.

• **Allied Lead Construction Company**, 6836 S. South Chicago avenue, will soon erect a new factory at 119th and Wood streets. The work, scheduled for completion early in March, will be a one story building covering 10,000 square feet of floor area. The company manufactures tank linings and sheet or homogeneous bonding lead pipe coils to specification. Brownson and Conterato, architect.

• **Central Bag and Burlap Company** is constructing an addition of

4,000 square feet to its present warehouse at 4515 S. Western avenue. The company manufactures cotton and burlap bags and related products. A. Epstein and Sons, Inc., architect.

Barnes Metal Products Company, 4425 W. 16th street, is enlarging its plant by 15,000 square feet which will be used for warehousing and receiving. The company manufactures sheet metal products. Klefstad Engineering Company, engineer.

Mastic Tile Corporation of America is erecting an addition of 10,000 square feet to its plant in Collet. The company also has a sales office located at 1233 W. Belmont avenue.

Bardell Manufacturing Company, newly organized, has acquired a three story, 21,000 square foot building in Steger. The firm will manufacture auto visors, wading pools, and plastic toy items.

U. S. Engineering and Manufacturing Company will consolidate its manufacturing activities in 40,000 square feet of manufacturing area it has acquired at 315 N. Ada Street. Louis B. Beardslee and Company, broker.

Unipak Corporation, formerly located at 7033 W. Higgins road, now occupies a new building of 10,000 square feet of space in Franklin Park. The company specializes in custom packaging.

Bell Tool Corporation is erecting a new factory building in Evansville containing 6,000 square feet of floor area. The company will move from its present location at 1807 N. California avenue when the new plant is completed sometime in March. Albert S. Hecht, architect.

American Can Company is constructing a transformer vault and accompanying equipment at its plant located at 1834 N. Clybourn street.

Mark Products Company, 3547 W. Montrose avenue, is establishing a plant in Morton Grove, where the company has acquired 4,000 square feet of floor area for its manufacturing facilities and development lab-

oratory. The company makes radio and television antennas.

• **Delta Star Electric Division of H. K. Porter Company**, 2437 W. Fulton Street, is making a major expansion of its plant with the addition of 15,000 square feet of floor area.

Here, There and Everywhere

(Continued from page 8)

are allowed to project outside the patient's body. The radioactive iodine, which gives off radiations similar to radium, is inserted in the tubing in liquid form. The ends of the tubing are filled with either air or mercury and sealed off. The isotope can be left in the patient until it loses its radioactivity, which is a period of about eight days, or can be withdrawn if further surgery is needed. After the treatment is completed the tubing is allowed to remain in the patient, where it causes no difficulty.

• **It's Back-to-Work for Executives** — Four top executives of Bowser, Inc., Chicago, are turning

"shirt-sleeve" salesmen to discover first-hand the problems confronting the company's sales force. Heading the "Bowserama Roadshow" is Bowser chairman and president, R. Hosken Damon. The group will tour the principal markets and take a personal part in sales solicitations. Props for their sales presentations will include some 20,000 pounds of products arranged in 12 booth displays representing the company's principal domestic subsidiaries. Bowser's line of products range from massive equipment for the petroleum, automotive, filtration, refrigeration and chemical industries to capacitors for the radio-television field.

• **Bestsellers in Russia** — Jack London's rugged animal and adventure stories continue to be the favorite American literature read in Soviet Russia, according to a study by a Northwestern University professor and his wife, Deming B. and Glenora W. Brown. Also on the Russian popularity list are such writers as Zane Gray, James Oliver Curwood, Bret Harte, and James Fenimore Cooper. Reason for these se-

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lections: These authors specialize in stories of primitive nature, raw adventure and action in remote settings. According to the study, many Russians may feel a sense of identification with such stories because "frontier life was very much a part of the Soviet scene too." Furthermore Russian censorship bans all contemporary works which do not directly support the official Soviet thesis of American decadence.

• **It May Replace the Horse** — The automotive industry has produced 136 million motor vehicles in 54 years. Forty-seven million of the total production has been turned out since World War II, including 5.3 million in 1954.

• **Relating Public Relations** — The Chicago Chapter of the Public Relations Society of America has turned up these facts about its own profession through a study of 114 Chicago firms. As a formalized activity, public relations is a post World War II addition in about half the companies studied. In 68 per cent of the companies studied, public relations is a management function with the public relations director

serving as a member of the top management team. The three main reasons advanced by these PR departments for their existence: 38 per cent — to interpret their company to its public; 17 per cent — to interpret to top management the public's attitudes about the company; 13 per cent — to prevent internal difficulties which could cause trouble for the company. More companies (48 per cent) ranked the "employee" as the company's most important public than those (43 per cent) that ranked the "customer" as the most important function.

• **A Herring's a Herring** — A person who sells herring must have a retail fish dealer's license no matter who eats it. This applies even if the dealer exclusively sells small fish used for bait. This fish story comes from the Commerce Clearing House report of an opinion by Washington's attorney general.

• **Animated Cartoon on Direct Mail** — A 16-minute animated cartoon film devoted to direct mail advertising has been produced by the direct mail division of The Reuben H. Donnelley Corporation, 350 E. 22nd Street, Chicago 16. Titled

"Dear Mr. Customer," the film, which is in full color, cost \$65,000 and is said to be one of the most elaborate efforts ever made to explain the purposes and methods of a major advertising medium. The film is available on request for showing to advertising clubs and organizations.

Design For Better Living

(Continued from page 22)

pattern of casual, informal living with a great deal of activity outside the house as well as inside.

The trend toward the 35 hour week, longer vacations and increased life span offers people an increase in leisure time and an attendant increase of "spending time." And in spite of the constant rise in our standards of living, we have moved more completely into the era of the servantless home. The silent servants in the kitchen of 1960 will give the kitchen back to the family as a usable, livable area of their home activity. It will no longer be a place of drudgery. The kitchen is becoming once more, as it was in pioneer days, the meeting place for the family and friends, the heart and center of the home. We are, then, designing appliances for this living area with warmth, friendliness and practicality to fit the human needs and human wants for beauty as well as utility.

The breakdown of big appliances into smaller, more functional, more conveniently placed units is inevitable. This trend is already evident in the field of kitchen ranges which we find more and more often broken down into cooking elements built into wall recesses or work surfaces where they are most convenient.

Although still in the experimental stages today, by 1960 we should see the same sort of modularization of refrigeration equipment to meet the more specific needs of the home-maker. The salad refrigerator may be a small, drawer-like compartment near the sink. Meat, storage and double-faced units to be opened from either the kitchen or dining area will be in wall-hung or standardized standing cabinets. All of these units will take on architecturally tailored lines to fit into the "built-in" concept new to kitchen equipment.

As to the current furor about color
(Continued on page 35)

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Transportation and Traffic



NON-LAWYER applicants for admission to practice before the Interstate Commerce Commission will be required to have a minimum of two years of college plus technical education, training or experience the equivalent of two additional years of college education, according to the terms of a notice issued December 1 by the commission. The new qualification standard, which becomes effective May 1, 1955, reads as follows: "A minimum of two years of college, plus technical education, training or experience which is regarded by the commission as the equivalent of two additional years of college education in equipping the applicant for practice before the commission, plus an examination sufficiently comprehensive to test the applicant as to his experience in the field of transportation and his knowledge of the principles of regulation, the laws governing it, the economic principles underlying it, the commission's rules of practice and the canons of ethics of the Association of Interstate Commerce Commission Practitioners. In exceptional cases where study and training are shown to be the equivalent of the foregoing standards, an applicant may be admitted to the examination if he can sustain the burden of so proving. An order of the commission shall be required in such exceptional cases." The examinations will, as at present, be conducted on the second Tuesday in February and July of each year in selected cities where offices of the commission's Bureau of Motor Carriers are located. Applications filed from December 1 to April 30, inclusive, will be considered for the July examination and those filed from May 1 to November 30, inclusive, will be considered for the February examination. The present provision requiring applicants who are unsuccessful in three examina-

tions to withdraw their application will also continue in effect.

• **Examiner Reverses Ruling on Bulk Water Carriage Exemption:** Interstate Commerce Commission Examiner W. J. Kane, in his proposed report, recommends setting aside a ruling of the Commission's Bureau of Water Carriers and Freight Forwarders pertaining to the exemption on water carriage of bulk commodities authorized under Section 303(b) of the Interstate Commerce Act. That section of the Act exempts from regulation water transportation of bulk commodities when not more than three such commodities are transported in the same vessel or tow. The bureau, in its ruling released last April, held that when an originating carrier handling an exempt tow transfers it to a regulated carrier who adds it to its own tow which includes non-exempt commodities, the exemption nevertheless applies since the second carrier is an agent of the originating carrier. In reversing this ruling, Examiner Kane pointed out that if the entire through barge movement of the bulk commodities had been completed by the originating carrier, the exemption applicable to that type of traffic would have continued throughout the journey. He added, however, "where the commodities in bulk were transported for a part of their journey in mixed tows with non-exempt commodities, it could not be said that carrier 'A' (originating carrier) confined its services to exempt transportation. Such transportation under these general conditions would not be exempt." The examiner concluded that on the facts submitted, the ruling of the bureau was inapplicable and recommended that it be reversed or set aside. The report was issued in No. 31598, American Barge Line Company and Mississippi Val-

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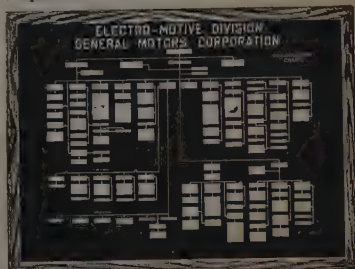
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ley Barge Line Petitions for Declaratory Order Respecting Status of Certain Transportation Under Section 303(b) of the Interstate Commerce Act.

• **Rock Island's Motor Subsidiary** Granted Unrestricted Rights: The Rock Island Motor Transit Company, a wholly owned subsidiary of the Chicago, Rock Island and Pacific Railroad, was granted unrestricted operating authority by the Interstate Commerce Commission to serve points in the states of Illinois, Iowa and Nebraska. This is the first such authority ever granted a rail-owned motor carrier. Motor authority in the past has been restricted to service auxiliary or supplemental to the service of the owner railroad. The commission said that its findings should not be interpreted as setting a precedent and pointed out that in this case the authority was required by public convenience and necessity. Each such case must be decided on its merits, the commission added.

• **Supreme Court Rules Against** Illinois Truck Overweight Law: The United States Supreme Court has ruled that the State of Illinois cannot revoke or suspend the operating rights of an interstate motor carrier for violations of the state's weight regulations. The court's decision, which was delivered by Justice Black, upheld a ruling of the Illinois Supreme Court. A law passed by the Illinois General Assembly in 1951 made it possible for the state to suspend the operating privileges of a motor vehicle operator who is found guilty of 10 weight violations in a single year. Justice Black said that only the Interstate Commerce Commission can revoke or suspend operating rights granted interstate motor carriers and that the court was not convinced "that the conventional forms of punishment are inadequate to protect states from overweighted or improperly loaded motor trucks." The Supreme Court's unanimous decision was handed down in a case titled Latham Castle, Attorney General of the State of Illinois, et al v. Hayes Freight Lines, Inc.

• **Act Creating Chicago Port Authority** Ruled Valid: The Illinois Supreme Court has upheld the decision of the Cook County Superior Court that the Act passed in 1951 creating the Chicago Regional Port Authority is valid. The ruling gives a "green

light" to the \$25 million program for developing harbor facilities in the Lake Calumet area. In answer to the contention that the port authority is a monopoly, the court said, "It is now recognized by the state that under proper regulations, a monopoly in this field is preferable to unrestricted competition, and an act which permits such a monopoly is free from constitutional objections."

• **Eastern Railroads to Continue** Pick-Up and Delivery Charges: The expiration date of the 10 cent per cwt. charge assessed by the railroads for performing pick-up and delivery service on less carload shipments in Official territory has been extended to March 31, 1955. A new tariff, No. E-168-A, containing rules and charges for pick-up and delivery service has been issued by Agent C. W. Boin, effective December 31, 1954. In Supplement No. 1 to this tariff, effective January 1, 1955, the Delaware, Lackawanna and Western Railroad Co. excludes itself from application of the 10-cent charge. As a result, on and after January 1 pick-up and delivery service will be performed at stations of the D. L. & W. R. R. without charge.

• **I.C.C. Stays Orders in "All** Commodity" Rate Cases: The Interstate Commerce Commission has stayed its two recent orders in cases involving railroad and motor carrier "all-commodity" rates pending disposition of petitions filed by various parties for reopening of the proceedings. In No. 31006 the commission found that the railroad rates on "all-commodities" in mixed carload between points in Central territory, on the one hand, and points in Trunk Line and New England territories, on the other, not unjust, unreasonable or otherwise unlawful, but disapproved the maintenance of such rates when subject to a tariff rule authorizing the inclusion of any freight in the mixed shipment at rates or charges lower than the applicable "all-commodity" rate. In Nos. MC-C-1331 and I. & S. M-3900 the commission held that motor carrier truckload rates on "freight, all kinds" or "all-commodities" in mixed shipments from, to or within points in Central, Trunk Line, New England and Western Trunk Line territories to be unreasonably low and constituted destructive competition to the extent that they are below 45

er cent of the motor carrier first class rates or the railroad "all-commodity" mixed carload rates where such rates are lower than 45 per cent of the motor carrier first class rates.

Argument in War Reparation Cases Concluded: Argument before the entire Interstate Commerce Commission on the 17 complaint cases in which the federal government is seeking a refund on freight charges paid the railroads from 1941 to 1946, concluded December 2. At the end of the argument Chairman Mitchell of the commission advised that the proceedings would be taken under advisement. James E. Kilday, counsel for the Department of Justice, submitted a statement which estimated the amount of reparation which the government is trying to collect at about \$475,000,000. The railroads, however, set the amount at between two and three billion dollars.

Transportation Tax Collections Decrease: The Internal Revenue Service reports that for the fiscal year ending June 30, 1954, the 15 per cent tax on the transportation of persons yielded \$246,180,000 as against \$287,080,000 during the previous fiscal year. The three per cent tax on the transportation of property (four cents a ton on coal) produced \$396,19,000 as compared with \$419,604,000 in the fiscal year ending June 30, 1953. Collections of the 4½ per cent levy on the transportation of oil by pipeline increased from \$28,378,000 in the fiscal year ending June 30, 1953 to \$30,106,000 during the fiscal year ended June 30, 1954.

[Design For Better Living

(Continued from page 32)

appliances, I can't see where there is an argument at all. This is a tempest in a color-pot! The homemaker has indicated an interest and a desire for color and she will have it. The appliance industry is in much the same position in this color debate as was Henry Ford when it was suggested that he might break from his standard black finish to offer automobiles in a range of colors. He made the now historic comment: "I will make a car of any color . . . as long as it is black."

It was not long after making this statement, however, that this industrial giant had to concede the point. Today you would think it unusual if

you did not have a range of perhaps 20 colors from which to choose when buying a new automobile. You can buck consumer desires as long as you choose but you can be sure the consumer will have his way.

As the kitchen once more becomes a "living" room, the standards of decoration applied to every other living area of the house in color, materials and textures will soon become standard in the kitchen as well.

Handsome new appliances with automatic controls will not only lighten the burden of cooking, but bring this operation right to the table in full view of family and guests. Much of the food will even be partially pre-prepared and pre-packaged. The housewife will have little more to do than add her particular gourmet touch, bring to service temperature at the table and serve.

The sterile, laboratory-white kitchen is rapidly becoming a thing of the past. The kitchen which concedes decorative warmth and livability as one of its major functions is just around the corner of the future.

A look into our own crystal ball indicates that appliance manufacturing will be divided into two basic areas of manufacturing and merchandising. The first is the field of the integrated or "built-in" appliance. The second is the field of the "package group" wherein many multiple groups of appliances will be

assembled in a single large unit or in smaller units with a "family line" design integration and sold as a package.

Design today is not an aesthetic cultism, a merchandising snobbism or slick air brush renderings of futuristic dreams. Design must add to a mastery of practical technological and merchandising techniques the breath of life, the creative "urgency" of purpose, the real excitement of creativeness and even inventiveness to give design an individuality and an honest reason for being.

It must offer us more than better plans for production which, with our known ability, can be taken almost as a matter of course. Design as a major factor in industrial planning must answer the need for new products that make living in America a more pleasant emotional and physical experience.

To sum up, design is inherent . . . it is basic . . . design concerns itself with building better or doing better. By its very nature design offers a major route of study by which we may minimize the risk of consumer reaction. Design is itself a form of planning and offers strong control over the future. By way of a well integrated industrial program of design and planning we can have positive hope of creating better structures and better functioning devices that offer a minimum of industrial risk and a maximum of industrial profit.

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New Products

New Type Alloy Steel

A new type alloy steel, with unusually high resistance to impact and abrasion, has been announced by American Steel Foundries, East Chicago, Ind. Known as Wearpac, this steel has been subjected to extensive field testing in taconite, hematite and copper mining operations. Other characteristics claimed for the new steel include: It is machinable. It is magnetic. It can be welded by conventional arc welding methods. It has a tensile strength exceeding 220,000 p.s.i. in the normal range of 470-520 Brinell hardness.

The Rammer-Hammer

For tiny nails and brads, Do-Hicky, Inc., P.O. Box 37, Dept. 121, Rockville Center, N. Y. has come up with a gadget it calls the Rammer-Hammer. It has a magnetic tip that holds the elusive nail in place and a lever action that drives it home. The other end of the steel and brass tool doubles as a small hammer. It sells for \$2.00, postpaid.

Fire Extinguisher

A streamlined fire extinguisher will be on the market early in 1955. Manufactured by Ansul Chemical Company, Marinette, Wis., the new unit is capable of discharging ten pounds of dry chemical, considered to be the latest and most effective extinguishing agent for flammable liquid or electrical fires. Although designed primarily for industrial use, its overall weight of 22 pounds also makes it a potent fire stopper in the home. Approved by National Board of Fire Underwriters, it is priced at \$52.50.

Tougher Tops for Convertibles

A vinyl plastic coating on a textile base is being produced for use in making convertible tops by Textile-leather Division of General Tire & Rubber Company, 1708 Englewood Avenue, Akron 9, Ohio. The new material, called Duratop, won't shrink, stretch, stain, leak, rot, scuff,

or crack according to the manufacturer.

Stops Sun Glare

A new transparent plastic coating for windows stops all of the glare and most of the heat from the sun's rays but allows the sun light to come in freely. The coating will not peel or crack and is said to give years of service. Manufactured and applied by Sun Guard, Inc., 4912 W. Division St., Chicago 51.

Sun Visor Doubles as Map Holder

An automobile sun visor that doubles as a map holder is being made by Rockford Engineering Products Company, 2324 23rd Avenue, Rockford, Ill. The unit contains a complete road map of the United States. In five sections, the map unrolls from the visor frame like window shades. Complete with indirect lighting, it sells for \$14.95.

Magnetic Door Latch

A magnetic door latch, using a half ounce magnet with a 10 pound pull is being produced by Heppner Sales Company, Round Lake, Ill. It sells for 49 cents.

Giant Vacuum

Announcement of a giant twin powered industrial vacuum capable of picking up large amounts of bulk material and waste such as rags, paper, dirt, litter, and metal chips and filings, has been made by American Cleaning Equipment Corporation, 2029 S. Halsted St., Chicago 8. The two motors, it is said, create such a large volume of air that it is possible to use a 3-inch ID hose to pick up bulk material. The new model is No. 500-55.

Industrial Coagulant

Dow Chemical Company, Midland, Mich., announces a new coagulant or flocculating agent that it says promises to be a new advance

in the separation and filtering of water dispersed solids in industry. The trade name of the product is Separan 2610. Of special interest to the mining industry, the product holds promise of revolutionizing the steps necessary to remove solids from water solutions in many applications, says Dow. It is said to be effective in dosages as small as one part per two million parts of dispersed solids.

Flatware Spray Painter

Something new in the way of automatic spray painting machines is the Binks Rotary Spray Painting Unit for use on flatware. Until now automatic reciprocating machines, whose spray guns move back and forth in a straight line at right angles to the conveyor belt, have been used exclusively for this purpose. The Binks sprayer consists of four rotating arms mounted on a revolving vertical spindle. An automatic spray gun is mounted on each of the arms. The guns operate only when they are directly over the ware, each gun turning on automatically when it approaches the edge of the product. The machine is said to be able to apply coatings at extremely high conveyor speeds. The manufacturer is Binks Manufacturing Company, 3122 Carroll Ave., Chicago 12.

Label Dispenser

An electric label dispenser that feeds pressure-sensitive labels the instant they're needed has been developed by Avery Adhesive Label Corporation, Monrovia, Cal. It is called the Avery Label Dispenser "55." There are no foot switches or rheostat controls. When a label is taken from the mouth of the dispenser, another label rolls out automatically. The device dispenses labels from one-quarter inch to five inches wide and from one-quarter inch to eight inches long.

Liquid Rubber Coating

Rub-R-ize is the name of a liquid natural rubber which, applied like paint by brush or spray or dipping, dries quickly at normal temperatures into a flexible protective rubber coating. The maker, Rubber Magic, Inc., 4312 Third Ave., Brooklyn 22, claims it will rubberize any-

thing "from a pair of pants to an entire roof." It can be used to coat the grips of golf clubs and other sports equipment, or applied to cellar steps to make them slip-proof, or to repair rubber seals on appliances, says the company. It's available in half-pint, pint and quart cans and in black, green, red, and a transparent shade.

Hearing Aid Specs

A hearing aid that looks like eye glasses is being produced by Otaron, Inc., 185 Ashford Ave., Dobbs Ferry, N. Y. All the mechanism of the hearing aid is incased in the frame of eye glasses. No wires show. The unit sells for \$265.

It's a Doggy Collar

If your dog is leading a dog's life because of fleas, ticks or lice, feed him this information. The Paul Alexander Company, Inc., 75 Madison Avenue, New York 16, N. Y. is marketing a new collar, the K-9 Guardian Collar. By wearing this leather collar for a little while each day the dog will be protected permanently

against all animal pests according to the company. Particularly doggy is the one-minute application of the Formula K-9 ointment required only once a month. The collar with year's supply of ointment sells for \$2.98.

Ball Point Pen—New Version

The latest in the field of ball point pens is the Blythe Automagic. According to the manufacturer, it is devoid of both the detachable cap or push button mechanisms. The new pen is reported to operate with a twist of the wrist. Hold the pen upright and the writing point automatically disappears into the body of the pen. Turn your wrists and the point slides out and locks, ready for writing. Manufactured by the B. B. Pen Company of Hollywood, Calif., the pen retails for \$1.95.

Vertical File System

A new system for filing active office records that reportedly has a 90 per cent increase in capacity over conventional files is being made by the DeLuxe Metal Furniture Company, Warren, Pa. Called Verti-File, the

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new files use vertical shelving with adjustable snap-in metal dividers on every shelf. It is reported by the company that per filing inch expense is 67 per cent less than the conventional filing systems. Complete visibility and the elimination of file drawers make for much faster record storage.

Light Weight Bath Tub

A reinforced plastic bathtub weighing only 17 pounds is being made by Lunn Laminates, Inc., Huntington Station, L. I., N. Y. A comparable full size metal tub weighs close to 200 pounds. Other advantages claimed for the plastic tub: less breakage in transit, better styling, non-rusting, "warmer" touch and a lustrous finish that lasts the lifetime of the tub.

Your Next Promotion May Kill You

(Continued from page 15)

and semiannual check-up for those over 60.

General Motors Corporation made a valuable beginning with exact recognitions of facts and figures by starting a program for diagnostic health examinations of its executive group. General Motors had reason to act: 189 of its top management group died in five war years.

New York's Life Extension Examiners checked the health of 25,000 executives, averaging 45.6 years of age. They found that only 20 per cent enjoyed normal good health. Standard Oil of New Jersey had 340 executives report for medical check-up. The test revealed that 235 had

something wrong with their health. Of these, 192 had ills that would materially affect their working lives if they remained undetected and untreated.

Some experts estimate that a \$20,000-a-year executive represents a \$250,000 investment by his company. The American Fidelity and Casualty Company is the source for the statement that the average businessman dies six years before his time, thus losing for the company a sizable part of that investment.

Furthermore, executives are reluctant to admit they feel badly. They go on to the next promotion, undergoing the severe stress and strain often connected with such advancement without complaining and without telling.

Doctors of large business and industrial companies are aware that top management no longer smiles when members of its executive team display such stoicism. The "carry-on" and "suffer-in-silence" schools are not in high esteem when their pupils drop dead at 50 from a usually curable disease.

The relative willingness of executives to submit to a regular program of physical checkups depends largely on how the results of the examinations are handled and on how the executive is handled when he does become sick or when he takes time off for a needed operation.

Where periodic medical examinations are mandatory for the executive group, experience is that cooperation of executives is sometimes lacking. They fear that discovery of any ailment would prejudice the boss against them. Instead of a mandatory checkup, most corporations have changed to voluntary ones, and the results are confidential between doctor and patient. In two large companies, 95 per cent of the \$10,000-and-over executives had taken complete physical check-ups, and the majority were willing to let the results be made available to their superiors.

Twenty years ago, many companies simply wrote off an executive who had a heart attack, a nervous breakdown, or a serious operation. Today, with greatly improved medical therapy, the situation is different. Many people with heart trouble, or

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a bad case of peptic ulcer, are able to return to full-time activity and efficiency after a few months.

Dr. S. Charles Franco, associate medical director of the Consolidated Edison Company of New York, emphasizes that the basic medical policy in his company is that periodic health examinations of executives are kept confidential. Otherwise, important details in the medical history cannot be obtained, and a complete clinical evaluation of the patient will be impossible.

Each executive examined is assigned a serial number so that any diagnosis or laboratory report cannot be identified with the person examined. There will always be situations where the health of the individual executive is a concern to management. But in these cases, it is only with the executive's consent and in his interest that the physician makes general recommendations to management. The confidential information is never revealed.

Many companies figure the cost of giving regular medical examinations at \$125 to \$150 a year per executive. Others put the figure from \$35 to \$125. But all are convinced that they are an excellent investment.

Dr. D. John Laurer, medical director of Jones and Laughlin, believes that efficient health programs also pay an extra bonus in morale and better productivity. "When an executive doesn't have to worry about his health," Dr. Laurer said, "he feels better and works better."

Mutual Understanding

Health examinations are also helpful in deciding whether a promotion will be of real advantage to the executive, or whether it might "kill him."

A constructive health program can effectively bridge the gap between the executive of today and the potential executive of tomorrow, if there is mutual understanding of the problem. At least during the first ten years of employment, a complete constructive medical inventory of an employee can be recorded. This will include, according to Dr. Page:

1) Occupational history. The stresses and strains he has undergone; his working environment, promotions, attitudes, desires, and frustrations. All may have a future effect upon his physical and mental well-being.

2) Pattern of his home life and

extra-curricular activities. These are important factors which are often overlooked in planning the future of tomorrow's executive.

3) Complete physical inventory. In addition to the taking of a thorough medical history, and the performance of a complete physical examination, this should include all the laboratory procedures needed. The person's physical make-up and his awareness of the importance of health maintenance should be recorded.

Man should live and work within his resources. Men promoted to po-

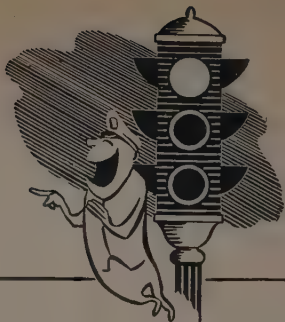
sitions beyond their inherent capacity to fill adequately without strain may be headed for the final crack-up. Executives may be promoted beyond their depth, because they have often an obsessive devotion to their jobs. As Dr. R. N. McMurry in a study on the "executive neurosis" points out, such persons may become over-aggressive, tense, and anxiety-ridden, although this may not show on the surface. A vicious spiral is started of anxiety, hostility, overactivity, and still more anxiety, and so round and round "until suddenly something gives."

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Stop me...If...



"My poor man," said the kind old lady to the beggar, "it must be dreadful to be lame. But think how much worse it would be if you were blind."

"You're right, lady," agreed the beggar. "When I was blind I was always getting counterfeit money!"

One day an Indian came into a bank in Oklahoma and asked about a loan.

"Me want \$200."

"And what security have you?"

"Got 200 horses."

This seemed sufficient security and the loan was made.

A short time afterward the Indian came back with \$2,200 in cash, paid off the note and started to leave with the rest of the roll in his pocket.

"Why not let me take care of that money for you?" asked the banker.

Looking the banker straight in the eye, the Indian asked, "How many horses you got?"

Pop: "Really, I'm worried about Junior's arithmetic. He told me that 7 and 4 makes 12."

Mom: "Well, I thing that's good for a little shaver—he only missed it by 2."

Engine trouble forced an airplane pilot to bail out. On his way down he met an old lady floating up.

"Hey," he shouted, "did you see a plane going down?"

"No," replied the old lady, "did you see a stove going up?"

Two privates paused at the side of the road to puzzle over a dead animal they saw there. "It has two stripes," said one.

"That settles it," said the other. "It's either a skunk or a corporal."

Little Tommy was about to buy a ticket to the movies. The box-office girl asked him, "Why aren't you at school today?"

"Oh, it's all right," piped Tommy earnestly. "I've got the measles."

Dad to Son: "It's none of your business how I first met your mother, but I can tell you one thing—it certainly cured me of whistling."

A doctor was called on by a testy aristocrat. "What's your trouble?" the doctor asked.

"That's what you are supposed to find out," was the reply.

"If you'll be kind enough to wait an hour or two, I'll call in a friend of mine, a veterinarian, who is the only person I know who can make a diagnosis without asking questions."

"Did you ever play football?" asked the Yale graduate of a visiting Englishman.

"No, sir, but at dear old Oxford we played Rugby."

"How is that played?"

"Well, sir, it consists of a lot of shin kicking."

"In this country we call that bridge."

"What happened after you were tossed out of the side exit?"

"I told the waiter I belonged to a very important family."

"So what?"

"He begged my pardon, asked me in again and threw me out the front door."

Moe: "You only make \$30 a week and you support eight children? How do you manage?"

Joe: "Easy. There are 500 people working at the factory with me and every week I raffle off my wages for four bits a chance."

"How does it happen that you are five minutes late at school his morning?" the teacher asked severely.

"Please, ma'am, I must have overwashed myself."

Prosecutor: "Now tell the jury the truth, Madam. Why did you shoot your husband with a bow and arrow?"

Defendant: "I didn't want to wake the children."

"I wish I had enough money to buy an elephant."

"What do you want with an elephant?"

"I don't. I just want the money."

Teacher: "How old would a party be who was born in 1899?"

Billie: "Man or woman?"

Two moonshiners were discussing their business.

"When I take my stuff into town," one of them explained, "ah always drives mighty slow — about 20 miles per hour."

"Skeered o' the law?"

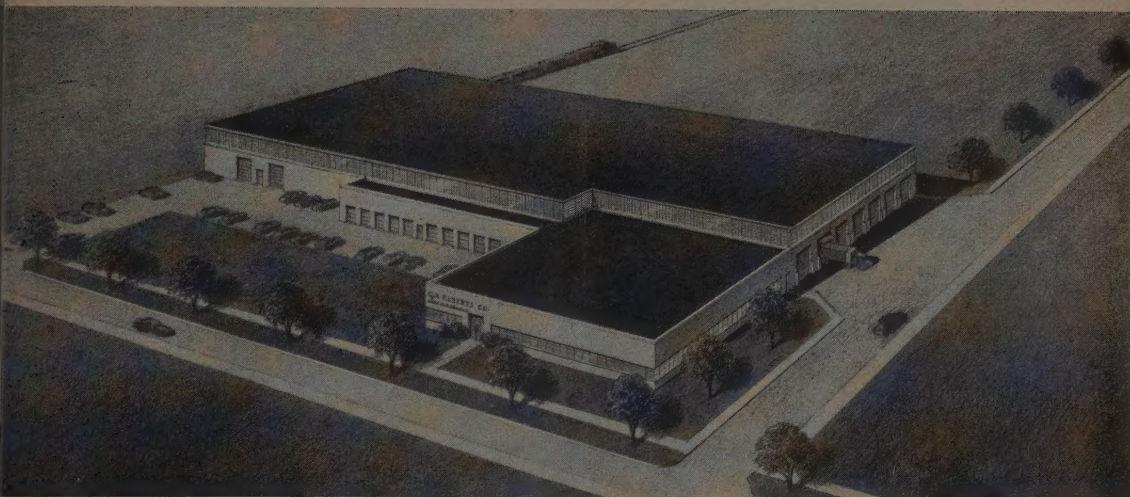
"Nope, gotta age the stuff."

Clerk: "Now see here, little girl, I can't spend the whole day showing you nickel toys. What do you want, the earth with a red fence around it for five cents?"

Little Girl: "Let me see it."



"I don't know what to do . . . my secretary just doesn't understand me"



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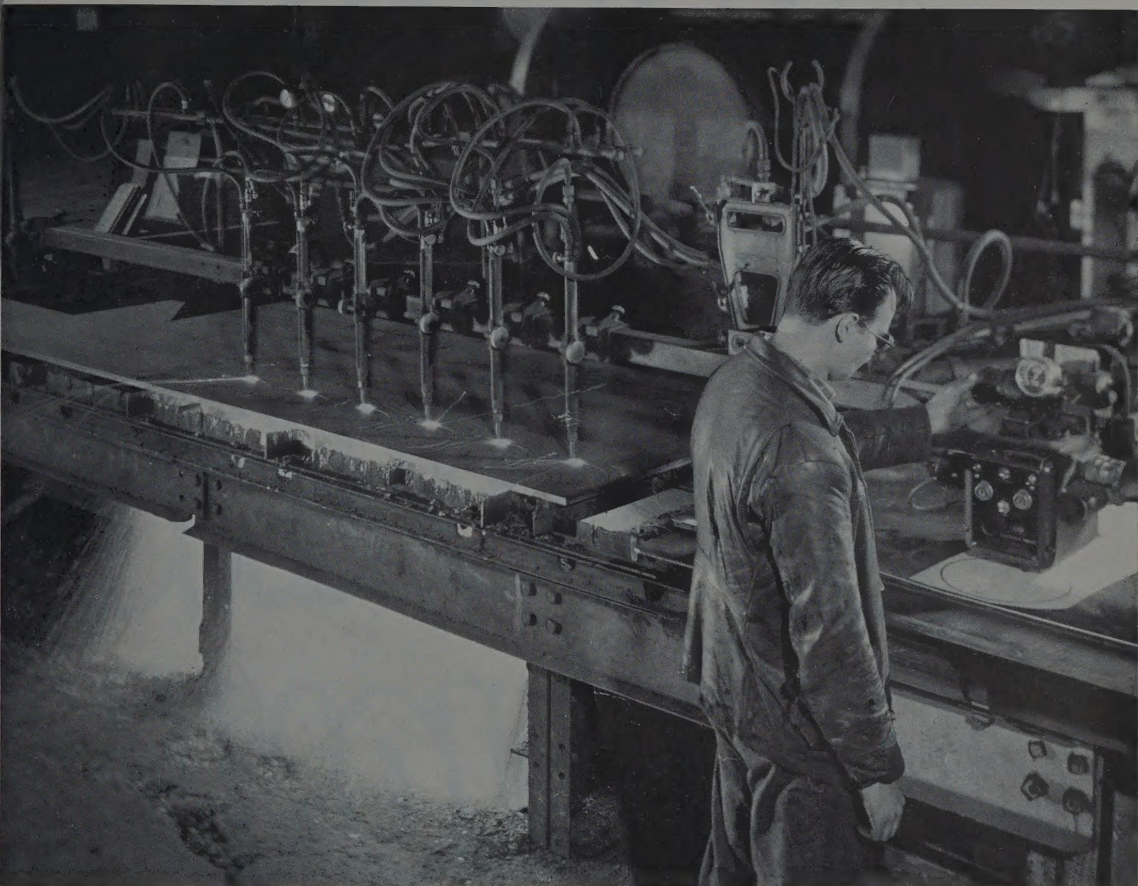
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